

780 CMR 3612

MECHANICAL DEFINITIONS

3612.1 GENERAL

**3612.1.1 Scope:** Unless otherwise expressly stated, the following terms shall, for the purpose of **780 CMR**, have the meanings indicated in 780 CMR 3612.1. Words used in the present tense include the future; the singular number includes the plural and the plural the singular. *Where terms are not defined in 780 CMR 3612.1 and are defined in 780 CMR 2 they shall have the meanings ascribed to them in 780 CMR 2. Where terms are not defined in 780 CMR 2 or 780 CMR 3612.1, they shall have their ordinarily accepted meanings.*

*Note: Such definitional terms are provided to establish a uniform technical language consistent with definitional terms of 527 CMR, 248 CMR, NFPA-31, NFPA-54 and the International Mechanical Code, as applicable.*

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MECHANICAL DEFINITIONS

**ACCESSIBLE:** Signifies access that requires the removal of an access panel or similar removable obstruction.

**ACCESSIBLE, READILY:** Signifies access without the necessity for removing a panel or similar obstruction.

**AIR CIRCULATION, FORCED:** A means of providing space conditioning utilizing movement of air through ducts or plenums by mechanical means.

**AIR-CONDITIONING SYSTEM:** An air-conditioning system consists of heat exchangers, blowers, filters, supply, exhaust and return-air systems and shall include any apparatus installed in connection therewith

**ALTERATION:** A change in an air-conditioning, heating, ventilating or refrigeration system that involves an extension, addition or change to the arrangement, type or purpose of the original installation.

**APPLIANCE:** A device which utilizes fuel or other forms of energy to produce light, heat, power, refrigeration or air-conditioning. This definition shall also include a vented decorative gas appliance and decorative gas appliances for installation in vented solid-fuel-burning

fireplaces. Unlisted gas-fired log lighters shall not be considered appliances.

**BOILER, HOT WATER HEATING:** A self-contained appliance from which hot water is circulated for heating purposes and then returned to the boiler, and which operates at water pressures not exceeding 160 pounds per square inch gage (psig) (1102 kPa gage) and at water temperatures not exceeding 250°F (121°C) near the boiler outlet.

**BRAZED JOINTS:** A joint obtained by the joining of metal parts with metals or alloys that melt at a temperature above 1,000°F (538°C) but lower than the melting temperature of the parts to be joined.

**Btu/h:** The listed maximum capacity of any appliance, absorption unit or burner expressed in British thermal units input per hour.

**CHIMNEY:** (See also "Vent") One or more passageways, vertical or nearly so, for conveying flue gases to the outside atmosphere.

**CHIMNEY CONNECTOR:** A pipe that connects a fuel-burning appliance to a chimney.

**CLOSET:** A small room or chamber used for storage.

**COMBUSTIBLE MATERIAL:** Any material not defined as noncombustible.

**COMBUSTION AIR:** The air provided to fuel-burning equipment including air for fuel combustion, draft hood dilution and ventilation of the equipment enclosure.

**CONCEALED GAS PIPING:** Piping that is enclosed in the building construction without means of access.

**CONDENSATE:** The liquid which separates from a gas due to a reduction in temperature, e.g., water that condenses from flue gases and water that condenses from air circulating through the cooling coil in air-conditioning equipment.

**CONDENSING APPLIANCE:** An appliance that condenses water generated by the burning of fuels.

**CONDITIONED AIR:** Air treated to control its temperature, relative humidity or quality.

**CONDITIONED SPACE:** The space contained within a building which is conditioned directly or indirectly by heating the operation of a cooling appliance.

**CONFINED SPACE:** A room or space having a volume less than 50 cubic feet per 1,000 Btu/h (4X3 L/W) of the aggregate input rating of all fuel-burning appliances installed in that space.

**CONTROL, LIMIT:** An automatic control responsive to changes in liquid flow or level, pressure, or temperature for limiting the operation of an appliance.

**CONTROL, PRIMARY SAFETY:** A safety control responsive directly to flame properties that senses the presence or absence of flame and, in event of ignition failure or unintentional flame extinguishment, automatically causes shutdown of mechanical equipment.

**CONVECTOR:** A system incorporating heating element in an enclosure in which air enters an opening below the heating element, is heated and leaves the enclosure through an opening located above the heating element.

**CONVENIENCE OUTLET,GAS:** A permanently mounted hand-operated device for connecting and disconnecting an appliance to the gas supply piping conforming to AGA Requirement 7-90. The device includes an integral, manually operated gas valve so that the appliances can be disconnected only when the valve is in the closed position.

**DAMPER, VOLUME:** A device that will restrict, retard or direct the flow of air in any duct, or the products of combustion of heat-producing equipment, vent connector, vent or chimney.

**DECORATIVE GAS APPLIANCE, VENTED:** A vented appliance installed for the aesthetic effect of the flames rather than functional effects.

**DECORATIVE GAS APPLIANCES FOR INSTALLATION IN VENTED SOLID-FUEL-BURNING FIREPLACES:** A self-contained, freestanding, fuel-gas-burning appliance designed for installation only in a vented solid-fuel-burning fireplace and whose primary function lies in the aesthetic effect of the flame.

**DILUTION AIR:** Air that enters a draft hood or draft regulator and mixes with flue gases.

**DIRECT-VENT APPLIANCE:** A fuel-burning appliance with a sealed combustion system that draws all air for combustion from the outside

atmosphere and discharges all flue gases to the outside atmosphere.

**DRAFT:** The flow of gases or air through chimney, flue or equipment caused by pressure differences.

**Mechanical or induced:** The draft developed by fan, air, steam jet or other mechanical means.

**Natural:** The draft developed by the difference in temperature of hot gases and outside atmosphere.

**DRAFT HOOD:** A device built into an appliance, or a part of the vent connector from an appliance, which is designed to (1) provide for the ready escape of the flue gases from the appliance in the event of no draft, backdraft or stoppage beyond the draft hood, (2) prevent a backdraft from entering the appliance, and (3) neutralize the effect of stack action of the chimney or gas vent on the operation of the appliance.

**DRAFT REGULATOR:** A device which functions to maintain a desired draft in the appliance by automatically reducing the draft to the desired value.

**DUCT SYSTEM:** A duct system is a continuous passageway for the transmission of air which, in addition to ducts, may include duct fittings, dampers, plenums, fans and accessory airhandling equipment.

**EQUIPMENT:** A general term including materials, fittings, devices, appliances and apparatus used as part of or in connection with installations regulated by 780 CMR 36.

**EVAPORATIVE COOLER:** A device used for reducing air temperature by the process of evaporating water into an airstream.

**EXCESS AIR:** Air which passes through the combustion chamber and the appliance flue in excess of that which is theoretically required for complete combustion.

**EXHAUST HOOD, FULL OPENING:** An exhaust hood with an opening at least equal to the diameter of the connecting vent.

**FACTORY-BUILT CHIMNEY:** A chimney composed of listed and labeled factory-built components assembled in accordance with the manufacturer's installation instructions to form the completed chimney.

**FIREPLACE:** A listed and labeled factory-built or site-built hearth and fire chamber constructed of noncombustible material for use with solid fuels and provided with a chimney.

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**FIREPLACE STOVE:** A freestanding, chimney-connected solid-fuel-burning heater with or without

**FLAME-SPREAD INDEX:** A numerical index indicating the relative surface-burning behavior of a material tested in accordance with ASTM E 84.

**FLOOR FURNACE:** A self-contained furnace suspended from the floor of the space being heated, taking air for combustion from outside such space, and with means for lighting the appliance from such space.

**FLUE:** See "Vent."

**FLUE, APPLIANCE:** The passages within an appliance through which combustion products pass from the combustion chamber to the flue collar.

**FLUE COLLAR:** The portion of a fuel-burning appliance designed for the attachment of a draft hood, vent connector or venting system.

**FLUE GASES:** Products of combustion plus excess air in appliance flues or heat exchangers.

**FUEL-PIPING SYSTEM:** All piping, tubing, valves and fittings used to connect fuel utilization equipment to the point of fuel delivery.

**FURNACE, WARM-AIR:** A vented heating appliance designed or arranged to discharge heated air into a conditioned space.

**GAS:** Fuel gas, such as natural gas, manufactured gas, undiluted liquefied petroleum gas (vapor phase only), liquefied petroleum gas-air mixture or mixtures of these gases.

**GAS PRESSURE REGULATOR:** See "Regulator."

**HEAT PUMP:** An appliance having heating or heating/cooling capability and which uses refrigerants to extract heat from air, liquid or other sources.

**HIGH-TEMPERATURE (H.T.) CHIMNEY:** A high temperature chimney complying with the requirements of UL 103. A Type H.T. chimney is identifiable by the markings "Type H.T." on each chimney pipe section.

**LABELED:** Devices, equipment or materials to which have been affixed a label, seal, symbol or other identifying mark of a testing laboratory, inspection agency or other organization concerned with product evaluation that maintains periodic inspection of the production of the above labeled items which attests to compliance with a specific standard.

doors connected to the chimney.

**LISTED and LISTING:** Terms referring to equipment which is shown in a list published by an approved testing agency qualified and equipped for experimental testing and maintaining an adequate periodic inspection of current productions and whose listing states that the equipment complies with nationally recognized standards when installed in accordance with the manufacturer's installation instructions.

**LOG LIGHTER, GAS-FIRED:** An unlisted manually operated gas-fired solid-fuel ignition device for installation in a vented solid-fuel-burning fireplace.

**LOW-PRESSURE GAS SUPPLY SYSTEM:** A gas supply system with gas pressure at or below 0.5 psig (3.44 kPa gage).

**LP GAS:** Liquefied petroleum gas composed predominately of propane, propylene, butanes or butylenes, or mixtures thereof which are gaseous under normal atmospheric conditions, but can be liquefied under moderate pressure at normal temperatures.

**MANUFACTURER'S INSTALLATION INSTRUCTIONS:** Printed instructions included with equipment as part of the conditions of listing and labeling.

**MASONRY CHIMNEY:** A field-constructed chimney of masonry units, bricks, stones, labeled masonry chimney units, or reinforced portland cement concrete, lined with suitable chimney flue liners.

**MECHANICAL EXHAUST SYSTEM:** Equipment installed in a venting system to provide an induced draft.

**MEDIUM-PRESSURE GAS SUPPLY SYSTEMS:** A gas supply system with gas pressure exceeding 0.5 psig (3.44 kPa gage) but not exceeding 5 psig (34 kPa gage).

**NONCOMBUSTIBLE MATERIAL:** Materials that pass the test procedure for defining noncombustibility of elementary materials set forth in ASTM E 136.

**NONCONDITIONED SPACE:** A space that is isolated from conditioned space by insulated walls, floors or ceilings.

**PLENUM:** A chamber which forms part of an air-circulation system other than the occupied space being conditioned.

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**QUICK-DISCONNECT DEVICE:** A hand-operated device that provides a means for connecting and disconnecting an appliance to a gas supply and that is equipped with an automatic means to shut off the gas supply when the device is disconnected.

**REFRIGERANT:** A substance used to produce refrigeration by its expansion or evaporation.

**REFRIGERANT COMPRESSOR:** A specific machine, with or without accessories, for compressing a given refrigerant vapor.

**REFRIGERATING SYSTEM:** A combination of interconnected refrigerant-containing parts constituting one closed refrigerant circuit in which a refrigerant is circulated for the purpose of extracting heat. In a direct cooling system, the refrigeration is circulated through a heat exchanger located in an air passage. In an indirect cooling system, a secondary working fluid is cooled by the refrigerating system and circulated through a heat exchanger located in an air passage.

**REGULATOR:** A device for reducing, controlling and maintaining the pressure in a portion of a piping system downstream of the device.

**REGULATOR VENT:** The opening in the atmospheric side of the regulator housing permitting the movement of air to compensate for the movement of the regulator diaphragm.

**RETURN AIR:** Air removed from a conditioned space through openings, ducts, plenums or concealed spaces to the heat exchanger of a heating, cooling or ventilating system.

**ROOM HEATER:** A freestanding heating appliance installed in the space being heated and not connected to ducts.

**SERVICE PIPING:** The piping and equipment between the street gas main and the gas-piping system inlet, which is installed by and is under the control and maintenance of the serving gas supplier.

**SMOKE-DEVELOPED RATING:** A numerical index indicating the relative density of smoke produced by burning assigned to a material tested in accordance with ASTM E 84.

**SUPPLY AIR:** Air delivered to a conditioned space through ducts or plenums from the heat exchanger of a heating, cooling or ventilating system.

**PURGE:** To clear of air, gas or other foreign substances.

**TYPE B VENT:** A listed and labeled vent conforming to UL 441 for venting gas appliances with draft hoods and other gas appliances listed for use with Type B vents.

**TYPE BW VENT:** A listed and labeled vent conforming to UL 1441 for venting gas-fired vented wall furnaces listed for use with Type BW vents.

**TYPE L VENT:** A listed and labeled vent conforming to UL 641 for venting oil-burning appliances listed for use with Type L vents or with listed gas appliances.

**UNUSUALLY TIGHT CONSTRUCTION:** Construction in which:

1. Walls and ceilings exposed to the outside atmosphere have a continuous water vapor retarder with a rating of one perm [57.4 ng/(s-m<sup>2</sup> Pa)] or less with openings gasketed or sealed, and
2. Weatherstripping has been added on openable windows and doors, and
3. Caulking or sealants are applied to areas such as joints around window and door frames between sole plates and floors, between wall-ceiling joints, between wall panels, at penetrations for plumbing, electrical and gas lines, and at other openings.

**VENT:** A passageway for conveying flue gases from fuel-fired appliances, or their vent connectors, to the outside atmosphere.

**VENT COLLAR:** see “flue collar.”

**VENT CONNECTOR:** That portion of a venting system which connects the flue collar or draft hood of an appliance to a vent.

**VENT DAMPER DEVICE, AUTOMATIC:** A device intended for installation in the venting system, in the outlet of or downstream of the appliance draft hood, of an individual, automatically operated fuel-burning appliance and which is designed to automatically open the venting system when the appliance is in operation and to automatically close off the venting system when the appliance is in a standby or shutdown condition.

**VENT GASES:** Products of combustion from fuel-burning appliances, plus excess air and dilution air, in the venting system above the draft hood or draft regulator.

**VENTED GAS APPLIANCE CATEGORIES:** The following categories are used to differentiate

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gas utilization equipment according to vent

**Category I.** An appliance that operates with a nonpositive vent connector pressure and with a flue gas temperature at least 140°F (60°C) above its dewpoint.

**Category II.** An appliance that operates with a nonpositive vent connector pressure and with a flue gas temperature less than 140°F (60°C) above its dewpoint.

**Category III.** An appliance that operates with a positive vent pressure and with a flue gas temperature at least 140°F (60°C) above its dewpoint.

**Category IV.** An appliance that operates with a positive vent pressure and with a flue gas temperature less than 140°F (60°C) above its dewpoint.

pressure and flue gas temperature.

**VENTILATION:** The process of supplying or removing conditioned or unconditioned air by natural or mechanical means to or from any space.

**VENTING:** Removal of combustion products to the outdoors.

**WATER HEATER:** A closed vessel in which water is heated by the combustion of fuels, electricity or other energy source and withdrawn for use external to the vessel at pressures not exceeding 160 psig (1102 kPa gage), including the apparatus by which heat is generated and all controls and devices necessary to prevent water temperatures from exceeding 210°F (99°C).

